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GEOGRAPHIC INFLUENCES IN HILDESHEIM AND BRUNSWICK, GERMANY

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INTRODUCTION

A glance at the boundaries of the various political divisions of Germany impresses one with the exceedingly irregular and seemingly senseless boundary lines. In the United States there are few cases of such irregularities. The Free State of Brunswick in Germany, however, contains three larger and six smaller areas wholly separated, no part being contiguous to the other. The department of Hildesheim of Prussia is almost as irregular in area yet these two political divisions dovetail into each other like pieces of a "jig-saw" puzzle, to form together an economic entity.

Topographically this "region" consists of the Harz Mountains, which rise one to two thousand feet above the surrounding country, and of lowlands mottled with numerous forested hills projecting several hundred feet above the low-lying valleys. Whether in the Harz Mountains or in the hills of the lowlands, the higher parts are well forested. Indeed in many instances the words "hill" and "forest" are used synonymously.

RELATION OF SETTLEMENTS TO NATURAL ENVIRONMENT

The original forests were deciduous, largely of beech, which furnished excellent grazing grounds for hogs. There was, however, a great deal of prairie land which invited cultivation. Cutting of forests, fire and overgrazing, especially by hogs, further extended the cultivated area. Such an area of uneven land was by no means unfavorable to medieval settlement. Thru both Hildesheim and Brunswick lay important Middle Age routes, partly because of the topography. Rough terrain was usually well drained land, very suit-

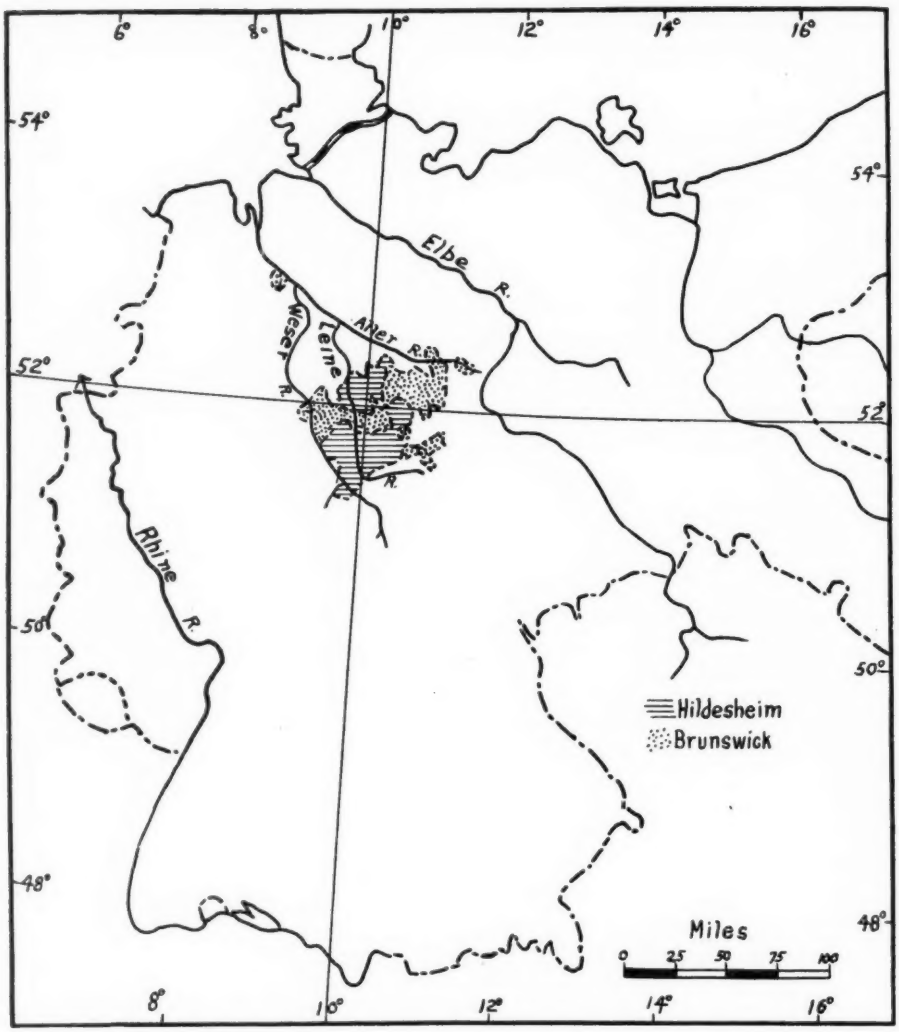

FIG. 1. Brunswick and Hildesheim are located on the northern edge of the North German Highlands.

able for road routes. The rough land of the plains made good sites for fortresses and monasteries. These became the nuclei of many cities. Since safety was an important factor in locating cities and overland routes, this region had decided advantages over the plains of the north.

One feature attractive to settlers of those times was the self-sufficiency of the territory. There was fertile land in the low lying valleys for the grains, and the hills afforded grazing for domes-

tic animals and game to supplement the meat supply. The hills also furnished the much-needed building materials which the valleys, on the whole, lacked. In times of danger, too, the hills must have served as refuges.

Whether the settler desired to build of wood or of stone, materials were easily obtainable in the hills. Building styles of the region vary from community to community, the differences being due largely to the availability of types of building materials. Thus, in the Harz Mountains where there has always been an abundance of timber, there is strong evidence of tendencies to build of wood. The largest wooden church of Germany is at Clausthal-in-the-Harz. Where building stone of good quality was found it was, and still is, used for construction of buildings. Limestone, gabbro, granite, and especially sandstone are used for making the walls. In many cases, perhaps in the majority of cases, the walls are of a cheaper stucco, braced by timbers arranged in neat designs. The roofs were often covered with thatch in medieval times but at present shingles of a crude kind replace straw. Where slate is quarried that material is often used.

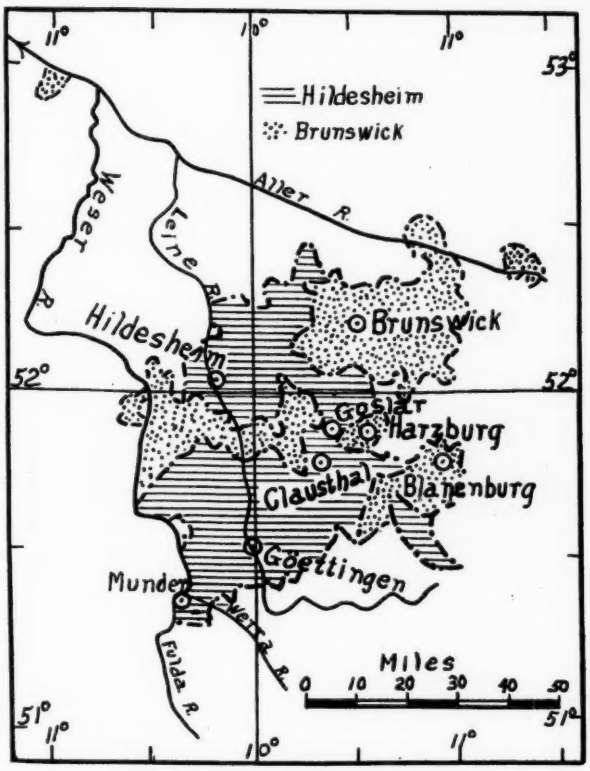

FIG. 2. Hildesheim and Brunswick together form a contiguous area, and, ignoring minor outlying areas, a fairly integrated entity. The Free State of Brunswick consists of three larger and several smaller pieces, and Hildesheim's boundaries are nearly as irregular. This illogical non-contiguous arrangement of territory, however, is not unusual in Germany. Most German states have under their dominion such wholly detached areas. Such boundaries are ridiculous heritages of the past.

A most interesting use of shingle is to be found in the Solling section of our "region." Here a purplish sandstone is quarried which can be worked into thin sheets like slate. It makes a very attractive roofing material. It is also used on the walls of the buildings especially to cover the stucco. In some cases it is used on all sides of the structures, but more often, for reasons of economy, the "weather" or westerly side is covered by it. It is unfortunate that modern tile and tin are replacing the beautiful Solling sandstone. However, all of the medieval buildings in many of the villages and most of the modern ones exhibit this beautiful natural stone.

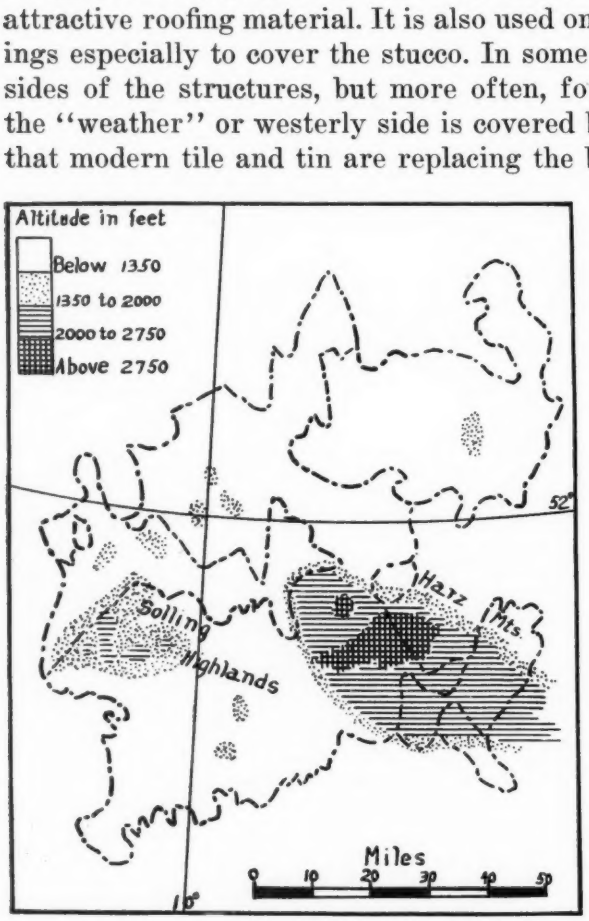

FIG. 3. The varying altitudes and geologic strata made for self sufficiency of the "region." The topography shows little influence on the political boundaries.

Individual villages often derived peculiar advantages from the site chosen for their location. Thus some, like Brunswick, were located on islands. Others were located in sheltered valleys of the Harz and elsewhere. Many of the villages, particularly those at the edge of the Harz, were on hills, or cliffs, where defense was easy. In most cases this natural defense was further enhanced by building walls around the villages. When such villages expanded, expense precluded the building of new walls so most of the communities had to endure considerable congestion in order to retain, at least, the business section within the ancient ramparts. Even now many towns are overcrowded as a heritage from older defense needs. Of necessity the street pattern is very irregular and lawns in front of homes are generally lacking, altho there are often spacious courtyards

at the rear of the house. There are a few farmers who live on their land, but most prefer the villages, and commute to their farms (even when their stock is left permanently in pastures). Medieval patterns and customs in general are still the dominant factors in the villages, for few new settlements have been established since the beginning of the modern era. Altho the villages have often expanded beyond the old city walls time hallowed traditions have not given way to modern innovation.

INFLUENCE OF MINERALS

The greater stability of government and the growing demands of the villages during the late medieval times naturally caused a great demand for goods not related to food and shelter. There was, of course, a great demand for minerals. Altho the iron ore of the Solling highlands, reduced with charcoal, helped to satisfy this demand, the chief mineral development took place in the Harz Mountains. This was probably the chief factor leading to the settlement of these mountains. In addition to the iron ore there were deposits of zinc, lead, silver, and copper in the Harz which supplied the growing demands of the medieval handicraft industries.

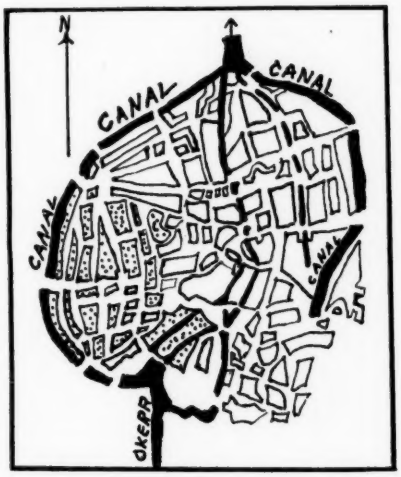

FIG. 4. The core of Göettingen was defended by walls and canals some of which still exist. The streets are still irregular and the congestion is still great because of these confining defenses.

Altho some hunting villages, established by feudal barons, developed into permanent settlements, most of the villages of the Harz owe their foundation to the discovery of metals. In the Upper Harz on the western end of the range, as well as on the Lower Harz on the east, many mining towns were begun. Both ore and charcoal for reducing it, could be secured easily. When the importance of the Harz as a mineral producing area was realized, each petty ruler from the lowlands nearby tried to get a slice of it to supply what his lowland holdings lacked. Each little political division wanted its bit of the Harz metals.

While fortunes of war, the intricacies of feudal intermarriage,

and many other factors played important parts in the division of the Harz Mountains, the desire to complement economically their own deficiency of metals helps account for the many peculiar boundaries these rulers laid down in the Harz. Thus, the Prussian provinces of Saxony and Hanover, and the free states of Brunswick and Anhalt, each own a little portion of these mountains. The muddled boundaries of the Harz are then largely the result of former economic needs.

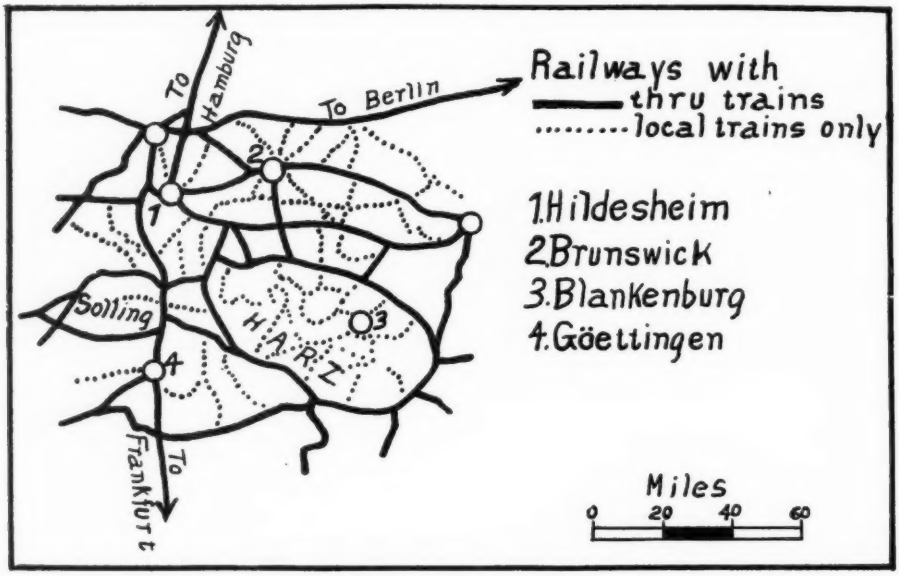

Fig. 5. The railroad net is quite dense but fast trains are found only on a few lines with level routes. The lines with fast trains have avoided the highlands, especially the Harz.

Effects of Modern Transportation

Even in modern times these boundary lines were none too stable until the advent of modern transportation and a modern Germany. The fortunes of this "region" waxed and waned with its checkered history. Thus the city of Hildesheim with some surrounding territory, was annexed to Prussia in 1802. In 1807 it belonged to Westphalia. In 1813 it became part of Hanover, whose rulers were also kings of Great Britain. In 1837 it became independent of Britain with the rest of Hanover. In 1866 all Hanover was captured by Prussia and became one of its provinces. Similarly, Hildesheim became the governing city of the department of Hildesheim in the state of Prussia. When, in 1871, Prussia, Brunswick

and other German states formed a unified Germany, the politicians received a great deal of credit for unification. The railroad, and other forms of communication such as the telegraph, should probably have been lauded more than the statesmen for creating conditions which made the old boundaries obsolete, and the fact that Brunswick and Hildesheim are still legally separate political divisions, is certainly due to historic rather than modern economic needs.

Since water transportation was important in the "region" only on the Weser River, the railroads were compelled to carry the largest portion of the bulk freight. The "region" had had important medieval routes running thru it, but the topography, not unfavorable to post roads, was too rough to be suitable for rail routes. Compared with the more level plains farther north just outside of the "region," the rail building was very expensive.

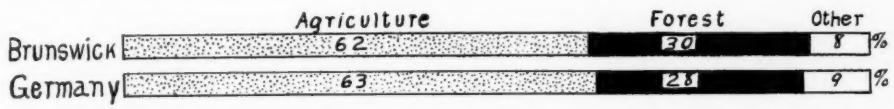

FIG. 6. Land utilization in Brunswick compared with that of Germany as a whole. Hildesheim and Brunswick are similar in the use made of the land.

Complicated boundary lines increased the difficulties and tended to favor private ownership of railroads. Aside from the tracks in the Leine valley, and the east-west railroads thru Brunswick city, the important rail routes were largely routed outside of Brunswick and Hildesheim.

The Harz Mountains in particular offered many difficulties to railroad building. Its edges stand up abruptly above the plains and its valleys generally offer very roundabout entrances into the uplands. The mining communities, furnishing a large amount of freight and passenger traffic, are largely in the interior of the mountains and at a fairly high altitude. In fact, it was not until near the end of the nineteenth century that the Harz was crossed. Two lines may be said to cross the Harz now, but other lines run into the range. An appreciable amount of the mileage of the Harz is narrow gauge, an economic measure forced by the unfavorable topography of the mountains.

EFFECT OF MODERN INDUSTRY AND AGRICULTURE

The first effect of the better rail transportation was to increase the industry of the "region." Mines prospered and were worked

to a greater capacity in the Harz, for the railroads were able to carry the products into the lowlands. The technical skill which ushered in the railroad was paralleled by technical developments in mining, fostered especially by the school of mines at Clausthal. In Clausthal they dug deeper and deeper and technical skill matched for a time the increasing difficulty of getting to accessible ore. Even as late as 1900 there were many small blast furnaces in the Harz. New products of the lowlands like gypsum, salt, potassium, lime and building stone were worked. Even basalt was quarried west of Göettingen and shipped away. Men, well trained in the handicrafts, furnished the skill to make Hildesheim and Brunswick outstanding in craftsmanship among German states.

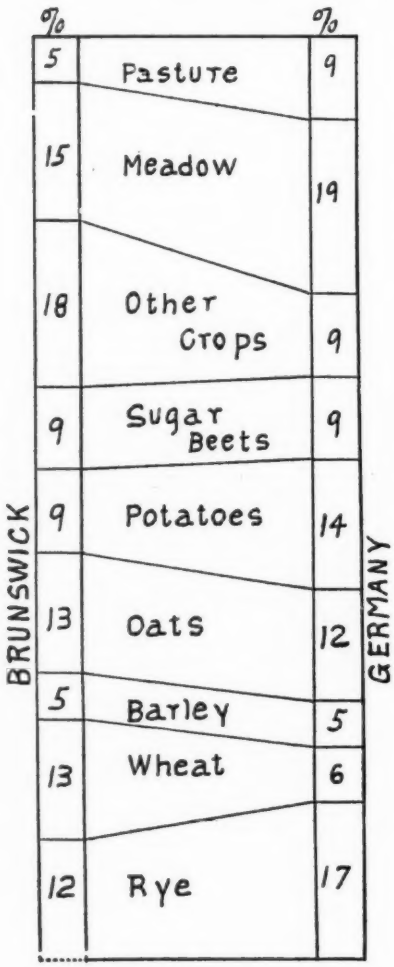

FIG. 7. The allotment of the farm land of Brunswick resembles that of Germany as a whole. A larger proportion of land is devoted to wheat and a smaller proportion to rye, potatoes, meadow or pasture in Brunswick than Germany. Hildesheim resembles Brunswick in its agricultural land uses.

But the "region" was not adapted to modern mass production. After all this section could not rival iron production in such well favored parts as the Ruhr, nor the metals found in other countries of the world. One by one the mines of the Harz were abandoned and the only mineral products of any importance at the present time are the nonmetals of the lowlands, the chief of which is coal.

Some manufacturing developed in the villages of the "region." German technical skill was not wanting. Some factories distilled wood for alcohol and vinegar. Others made plaster of paris from gypsum, and cement and lime from limestone. Establishment of plants for preserving of fruits, for making pianos, sewing machines, glass goods, pottery and other products was

encouraged. But these factories were either closely dependent upon local raw materials, such as sugar beets, or upon local consumption. These slowly expanding industries could not keep up with the mass production of the more favored regions of Germany.

The result of industrial retardation has been that few cities have sprung up. It is interesting to note that the two largest cities of the "region" are Brunswick (population 146,725) and Hildesheim (58,522), both capitals of the two political divisions under discussion, and the next city of importance, Göettingen (41,514), is the seat of a world-famous university.

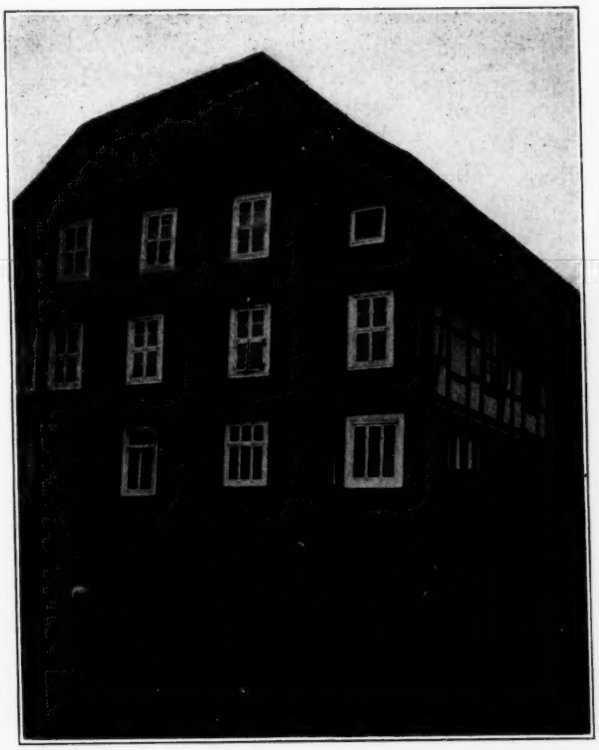

FIG. 8. A building having several varieties of covering: Solling sandstone at the top, slate and composition sheets at the levels of the windows and tin near the door. Bodenfelde village.

Agricultural industry has been affected appreciably by modern transportation. The agricultural sections here are no longer so self-sufficient as formerly. Altho flax and wool are produced to-day, cotton and other imported textiles have largely displaced the home grown fibers. Potatoes are a relatively new product, but are grown everywhere, even on the Upper Harz. Another relatively new crop, sugar beets, has a large acreage in the lowlands. The fertility of the lowlands is indicated by the fact that wheat has almost the same acreage in Brunswick as rye has, whereas rye has three times the acreage of wheat in Germany. On the whole the soil is better in this section than elsewhere in Germany and under such conditions the agriculture has suffered little.

Forestry is a type of agriculture fostered here by the State

rather than by private enterprise. Trees are planted and nurtured as carefully as any agricultural crop. Altho the original forests were largely deciduous, to-day the evergreen trees almost equal the acreage of deciduous trees in Brunswick. Deciduous trees are used largely for firewood, while conifers furnish more lumber. New trees like the American red oak and the Japanese larch are being tried out. Most promising of all foreign trees is the Douglas fir of the Pacific coast of America, which maintains a growth about twice as rapid as any native tree of Germany in the section. This tree will no doubt make the forests of this region even more productive. Of great interest to the passerby are the willows which are trimmed for basket weaving. Their club-shaped tops, due to excessive trimming, present a unique and weird appearance in the meadows where they are located.

Forests of this region have many other uses besides lumber production. Grazing is still carried on within them. The trees prevent erosion on nearby slopes and help to regulate stream flow. Charcoal is still produced in the Harz. One important by-product of forestry, too, is the encouragement the beautifully wooded areas here give to the tourist trade.

Development of Tourist Trade

The tourist trade is one important industry that has thrived in this "region," even tho very few foreigners visit it. Goslar, Brunswick, Hildesheim, Blankenburg, and other cities draw visitors because of their historic treasures. Lowland regions offer such architectural inducements as the Solling villages, and a holiday trip on the Weser is very popular. Even low hills are frequented by pedestrians to a degree unknown in the United States. The very lack, too, of manufacturing has no doubt been a factor in stimulating tourist trade.

The most important tourist center here is the section in and around the Harz Mountains. Altitudes are high enough to insure summer coolness. The absence of smoke, the abundance of forest land, of clear and swift flowing streams situated in beautiful valleys, and the peaks with beautiful panoramic views attract the visitors. There are also lovely lakes and both limestone and gypsum caves. In winter the Harz has a dependable supply of snow, very unusual for Germany, which attracts people interested in winter sports.

Some of the customs of the people of the Harz section are so

different from the surrounding territory that they alone attract many tourists. Many of these customs probably date back to heathen times, such as the pagan celebration of the victory of spring over winter at Easter time on the hills of the Harz. Many lovely religious and semi-religious festivities also attract many from the more prosaic cities.

Most important for tourist trade, however, is the unusually favorable location of the Harz. That range is situated close to Berlin, Leipzig, Bremen and other large cities, and it is actually

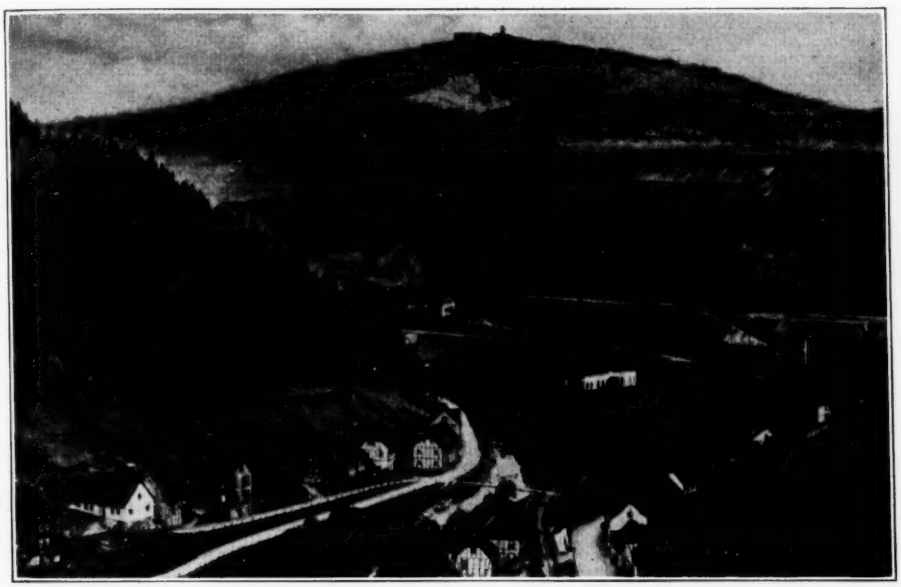

FIG. 9. Rübeland, a village in the Harz located on the Bode River. It was once a mining village and the dumps may still be seen to the right of the picture. Mining activity has ceased, however, and it is now a tourist village with the caves as a special attraction.

the closest of all sport centers to Hamburg and Hanover. This fact of accessibility has brought so many tourists to the Harz Mountains that this industry alone has probably compensated, to a large extent, for the great decline in mining and manufacturing.

SUMMARY

The location of Hildesheim and Brunswick in the uneven topography at the edge of the North German highlands has tended to make the boundaries very irregular. The environment has favored self-sufficiency until the advent of the railroad, when manufactur-

ing was temporarily stimulated. But the region was incapable of developing mass production like other sections of Germany. Therefore the "region" has retained more of its primitive characteristics than other more favored industrial communities. The factors which have retarded the manufacturing have, however, helped to make the region around the Harz especially interesting to tourists from the monotonous plains of northern Germany who come to enjoy the customs, the historical treasures, the climate and the scenery.

SOME OPINIONS RELATIVE TO THE CONTENT AND GROUPING OF GEOGRAPHY

WILLIAM J. BERRY
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Kalamazoo, Michigan

Some months ago, in the reorganization of curricula at Western State Teachers College, Kalamazoo, the question arose as to whether geography should be grouped with the Social Sciences or the "Sciences." We of the Department of Geography felt that our subject should be grouped with the latter since we believe geography makes its greatest contributions when detailed analyses are made of the natural items which help explain distribution and activities of mankind. Since there was some pressure from the outside to the contrary we decided to write many geographers of outstanding prominence and get their opinions on the matter.

The results of our inquiries were very gratifying indeed, even tho many of the replies did not place the emphasis where we hoped that they would. Aside from a few, notably, Doctors Atwood and Ridgley who were not in the country at the time, replies were received from all to whom we wrote. Most of the letters evidenced careful thought and the expenditure of considerable time (J. Russell Smith's reply occupied seventeen pages), so it seems best that we summarize these expert opinions and pass them along to others, for the letters are too valuable to remain only in our files. The writer knows of no other topic which has received so general an expression from outstanding geographers in several years.

In brief, the majority of opinions would have geography grouped with the sciences. Following are some of the reasons why that position is held.

If there is any distinction between natural and social sciences, that distinction lies in the insistence of the natural sciences on exact observation of external phenomena and closely reasoned generalizations based on observation. Whereas the social sciences, dealing as they do with that will-o'-the-wisp humanity, are compelled to utilize a higher proportion of subjective opinions and correspondingly fewer objective observations.

I suppose all workers in geography recognize that human geography involves much more observation than the other social sciences and somewhat more opinion than the other natural sciences. Nevertheless if I press the reasoning to its conclusion I always decide that its value as an observational discipline far exceeds its value as a compilation of opinions. Hence I personally prefer to class it with the natural sciences.

If to human geography is added physical geography (by which I mean the whole group of cognate fields: mathematical geography, climatology, geomorphology, pedology, plant and animal ecology) the balance is heavily weighted in favor of grouping the subject with natural sciences. In my opinion human geography in this country has deprived itself of important and valuable contributions by underemphasizing physical geography.

From this rambling argument I conclude that, wherever geography is located for convenience in any institution, it must remain as an effective discipline intimately bound up with natural science. While I should dislike to sever geography from anthropology, history, economics, political science, and even sociology, I should still more hate to see it cut off from its natural roots, geology, physics, and biology.[1]

Another reply, emphasizing likewise the fact that geography in dealing with human activity does not necessarily become a social science, comes out somewhat more forcibly.

Geography, of course, like any other subject, may be placed in any combination for administrative convenience. However, if it is to be grouped on the basis of its inherent quality, it would have to be placed among the natural sciences because geography is concerned basically with the earth and not with society. . . .

. . . as previously indicated, there are many specialized phases of geography. Human geography is only one of those phases. It is the emphasis which has been given to human geography that has led to the misconception that geography was a social study. The geography of a given region involves many things other than man. Geography also includes cartography, exploration of uninhabited regions, etc.

If we consider human geography only, we find that it makes important contributions to the solution of many social problems. It is therefore an important ally of the social studies. However, that does not make it a social study any more than it makes geology, chemistry, medicine or literature social studies. A social study deals primarily with relationship of *man to man.* Human geography (one phase of geography) deals primarily with *adjustments of man to his natural environment.* Therefore it should be perfectly clear to any open mind that geography cannot be a social study even tho it does contribute to the solution of social problems. Geography can be effective in the solution of social problems only by developing its own distinctive quality. Human geography develops a distinctive viewpoint and endeavors to evaluate natural environment as one of the many factors influencing human life. Hence, it is clear that not even human geography is primarily a social study.

Compared with the older established subjects geography is in an early stage of evolution in our elementary schools, secondary schools, colleges and universities. It is moving rapidly to a place among the natural sciences developing a field that is distinctly its own. No matter what is done in our colleges or universities for administrative purposes, geography will continue to evolve as a natural science.[2]

[1] Derwent Whittlesey, Harvard

[2] George J. Miller, Editor, Journal of Geography

A brief statement along much the same line follows.

Since geography deals mainly with the interpretation of *generalized* human activities developing as man occupies an area, as related to *specific* natural landscape items, or types of items, it seems logical that the greater weight be placed on the "natural science" aspect in the training of teachers, as well as the professional geographers. This seems the more necessary, since students before coming to college have had more training in the social sciences than the natural sciences, particularly the earth sciences.[3]

The following vigorous expression holds to much the same point of view.

It is substantially my opinion that geography is a natural science. However the matter of the subject is defined—the description of the surface of the earth—man as related to the earth—the earth as the home of man—the habitat qualities of the earth—it always refers to the surface of the earth and generally to man as well. Now, if it always has reference to the surface of the earth, it is more nearly related to the other earth sciences, e.g., geology, than it is to the social sciences. If it relates to man, it may be either. What, then, is the geographical point of view towards man? Do not geographers consider him as *on* and *of* the earth? I say, yes. If they do not then they are social scientists perhaps, but I deny that they are geographers. The distinction is a subtle one, but I think it is valid.[4]

Following are excerpts from other letters whose authors definitely lean toward the natural sciences.

As I read writing called social science it appears to be not science but loose, unreasoned, badly informed and illogical. It will be safer at present to put geography with the natural sciences.[5]

We feel that geography should be placed with the natural science group for we are convinced that a thoro grounding in weather and climate on the one hand and physiography on the other is necessary for a proper appreciation and understanding of geography.[6]

In my opinion geography is primarily a natural science, the science of the earth in its relation to man.[7]

By no means is the preference for the social sciences, in so far as curricula grouping is concerned, without its advocates. The letter setting forth this view the most forcibly follows.

I feel that geography definitely belongs with the social sciences but that, of course, many of its data are based upon the findings of the natural sciences. That is true not alone of geography but also of such things as economics, sociology and the like. All of these require natural science data but express their findings in terms of social reactions. . . .

My chief reason for feeling so sure that geography does not belong with the natural sciences is that I am afraid if it is put there all that we desired in human emphasis is likely to disappear. We certainly do not want to return to the physiography of a former day.[8]

[3] Lynn H. Halverson, Northern State Teachers College, Marquette
[4] Stanley D. Dodge, University of Michigan
[5] Mark Jefferson, Michigan State Normal School
[6] W. O. Blanchard, University of Illinois
[7] Howard E. Simpson, University of North Dakota
[8] Edwin H. Reeder, Teachers College, Columbia

Another expression of this point of view follows.

Two questions clearly are involved in any statement that may be made concerning the "grouping of geography among the other sciences." One of them relates to the philosophical nature of the content of geography and its position in the field of scientific research; the other to a matter of organization. The latter is essentially the question: In what administrative association can geographers work most effectively? I assume that it is this aspect with which you are most concerned.

We at Wisconsin are still undecided as to the type of association that will most advance the interests of geography here. As at many American institutions our association, for historical reasons, has been thru geology with the natural sciences. The matter of realignment is under current discussion and the members of our department are agreed that we need a more active cooperation with the social science group than has been true in the past.

There are reasons why geography may properly adhere to both the social and natural science groups. Certainly most of the work now done in geography is closely akin to the work of the social scientists. It would seem equally certain that the geographer has more to offer to the student of the social sciences than to the student of natural science, yet descriptive climatology, descriptive geomorphology, and other aspects of the field of natural earth that come within our proper sphere are essentially natural science. If we may officially join the social scientists without being read out of the natural science group, I think the change would be most advantageous. It is my belief that the dual relationship of our field is in theory defensible and our problem here at Wisconsin is to determine whether dual status, in the sense of official organization, can be achieved and defended in practice.[9]

The following clearly and logically expresses the attitude of the geographers at the University of California at Los Angeles.

It is my opinion that geography contributes most to the social sciences and, therefore, may best be placed in that category. Geography is concerned primarily with human activities and their relationship to natural environmental conditions. That viewpoint enriches the study of social sciences very greatly and the contributions of geography are fully appreciated by many workers engaged in history, economics, and political science.

It is true that geography deals with facts belonging to the realm of the natural sciences. However, it is not the goal of most geographers merely to discover and explain bare physical facts. It is more often true that the geographer accepts the facts given by specialized workers in the natural sciences and uses them in his interpretation of human affairs. Geography, therefore, contributes less new material to the natural sciences.[10]

Another point of view is voiced from two universities in which the work in geography has the reputation of being handled distinctly as a natural science.

(1) When this department was made independent . . . the faculty ruled that no other beginning courses could be given in the so-called science group; so we took our place in the social science group. . . . This was purely an arrangement of local convenience.[11]

[9] V. C. Finch, University of Wisconsin.

[10] Clifford M. Zierer, University of California at Los Angeles

[11] Preston E. James, University of Michigan

(2) Personally I don't think there is a logical answer to your question. We have answered it in terms of expedience, nothing more. At this institution the lower division courses are much restricted, and students are obliged to elect within specified groups, one of these groups being called natural science and another social science. The situation, of course, is very common.

The mass of students will sidestep laboratory work and mathematics, so that, when a lower division course is offered in the natural science group without such hurdles, it is likely to become frightfully swamped. Under these terms as a natural science subject, geography is likely to get large elections by indifferent students as being one of the least painful choices. Since, however, we are bracketed with history, economics, and so forth, in the social sciences, we do not get the students who are looking for the easiest way thru the curriculum. That's all there is to the situation.

Actually, our introductory course is straight physical geography, and as truly natural science as an introductory course in geology. The second course shifts to culture areas and is social science. More and more we are tending to present cultural and physical geography at the advanced level also in separate courses.

As to graduate work, we have had a closer association with anthropology than with any other department altho there is an exchange of students with history, economics, and geology as well. Formal minors have been dropped, but combination fields involving geographic preparation exist, such as Latin American Relations and Culture History.[12]

One well known writer in geography sums up his opinion thus: "In self defence I think we should line up with the social science group."

Many geographers are of the opinion that geography should be classified as a "socio-natural" science and should not be grouped with either the natural or the social sciences but rather geography should be listed with both or else the subject should stand alone. In that connection, the dual nature of geography is strikingly set forth in one of the letters.

The trouble with the alternatives involved in your question is that they leave no room for one of the chief characteristics of geography, its dual nature. It is not merely a definite, conventionalized technique like mineralogy or an account of organized human life and institutions like history. It does robustly and avowedly what most historians, economists, ethnographers, and sociologists do by implication, indirection, and under a sort of compulsion, namely, it recognizes the importance of geographical data and point of view in the analysis of the processes, institutions, and forms of human occupation of the earth.

If it concerned itself only with the human relationships or bearings of physical conditions or forces it could well be called a social science. But any effort so to restrict it is doomed from the start for it represents an attempt to confine thinking within the limits of a definition. Thinking by definition is not thinking at all. Such a course stultifies and defeats thought. Creative work is done by an unbounded mind or at an unbounded moment. A work of relationship now enlarges on the physical side, now on the human side. It is not everywhere and at all times seeking to recognize or emphasize relationships merely. It exhibits facility and expertness in handling physical principles and data as it looks for causes back of the distribution and activities of mankind.

If a choice had to be made between the natural and the social sciences, I should

[12] Carl Sauer, University of California at Berkeley

favor the natural, but it would be a hard and reluctant choice. Geography is really a borderline subject and it is better to give it a place in both groups rather than to restrict it to one.[13]

The following points to dual characteristics in geography but evidences a social science leaning.

Your question as to whether geography should be listed among the social or the natural sciences needs careful thought. The true answer, as it seems to me, is that geography by its very nature combines the two things. It is preeminently a science which attempts to discover the relation between the facts of nature and the facts of human society. Therefore to call it either a natural or a social science is a misnomer. Nevertheless, as a practical matter of policy, it is often necessary to classify it in one way or another. Twenty years ago under the influence of Professor W. M. Davis the pendulum had swung much too far toward the geological side and many people thought that geography was primarily one of the natural sciences. Now, however, we are in danger of forgetting that there can be no sound geography without a deepseated knowledge of natural science. Nevertheless, *human* geography in its various phases, such as economic, political, and social geography, is unquestionably the most interesting and practical part of the science for the great majority of people. The workers in human geography, as a rule, find greater sympathy among sociologists, anthropologists, historians and the like than among geologists, botanists and biologists. Therefore, if the subject must be placed in one group or another in any given university, it seems to me in general that it should go with the social sciences. . . .[14]

The difficulties in determining the sciences with which geography should be grouped is treated in this letter.

In reply to your question as to whether geography should be placed in the curriculum with the natural sciences or social sciences, I think no one can give a satisfactory answer. It is as tho I asked you the old question whether you will promise to stop beating your wife. Neither yes nor no will express the truth. In a very general way, geography is dependent on the natural sciences and itself underlies the social sciences. It will stagnate without the former just as the latter will stagnate without geography. The association of geography with geology in the United States has, on the whole, been fortunate. Having its roots in the ground does not prevent flowers and fruit at the top. . . .[15]

And also in this one.

Replying to your inquiry, I would say that the very nature of the subject matter of geography places geography in both the category of natural sciences and of social sciences. It is manifestly impossible to change the nature of the subject matter of geography which is established by a century or two of tradition in America. Physical geography is a natural science; economic geography is a social science and geography is both.[16]

Several of the letters referred to the plan in force at the University of Chicago as the ideal one, but, so far as the writer knows, that is the only major school in which geography is represented in both the social and the physical sciences. At Chicago, as Professor

[13] Isaiah Bowman, American Geographical Society
[14] Ellsworth Huntington, Yale
[15] Nevin M. Fenneman, University of Cincinnati
[16] R. H. Whitbeck, University of Wisconsin

Barrows reports, the plan is working out very satisfactorily and the relations of geography with both divisions and their deans are very cordial. From the statements in some of the letters one is inclined to think that the plan will be adopted in other schools.

More than a few of the letters voiced the opinion, some by specific statements and others by implication, that no great good is likely to come of the more or less arbitrary grouping of subjects such as forms the basis of this report. Professor Colby pointed out the similarity of such subject-grouping to a type of grouping practiced some years ago when some schools would not infrequently ask an instructor to teach a series of subjects within the group rather than in a single subject of his specialty. However, the fact remains that the grouping of similar (too often, alas, dissimilar) sciences is a relatively common practice. It is largely because of this fact that this collection of opinions is given. The writer hopes that eventually there may be a greater degree of agreement among the several leaders. However, he feels that the letters are a genuine contribution and every one of them, even those that contain obviously illogical statements, is food for serious thought.

DIAGRAMMATIC MAP MAKING

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The black and white sketch map so frequently found in foreign textbooks of geography may not seem to offer a great amount of stimulus to pupil interest. But it has offered to me, a teacher of geography, a two-fold suggestion, namely: (1) that a clean cut presentation of a few facts serves to impress them upon the mind of the pupil, and (2) that by reducing such salient features as one may wish to emphasize in map study to diagrammatic form, one may present them effectively and rapidly.

Map reproduction is always difficult. Even such maps as I have mentioned, shorn of all irrelevant detail, skeletal in appearance, are the result of cartographic skill. Exact reproduction would require time, and more skill than the average teacher has.

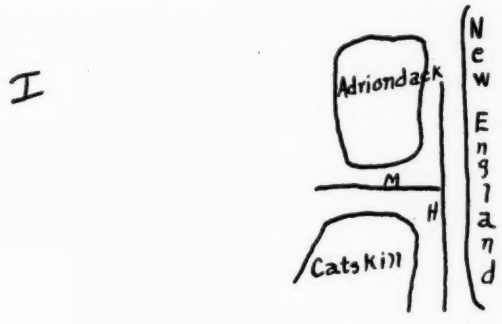
But diagrammatic presentation requires only knowledge of relationships. These can be shown simply and graphically, in a way as

easy for the pupil to produce during his study period as for the teacher to use in his presentation of the subject.

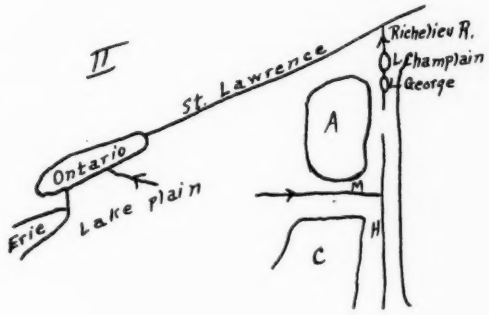
One such diagram will be developed to show the effects of geographic elements on man's activities.

THE HUDSON-MOHAWK DEPRESSION: A HIGHWAY OF TRADE

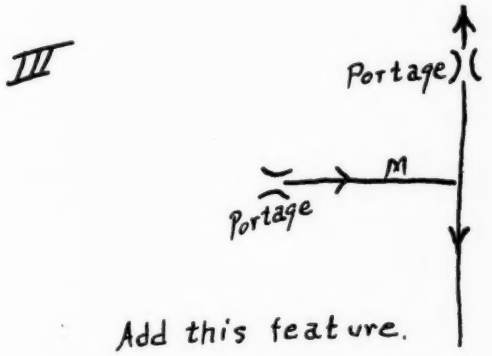
Here is a lowland area whose two valleys form a veritable right angle, as they separate the mountain region of New England from the remainder of the Appalachian highland and leave the Adirondack massif isolated.



To the west and to the north lie the Great Lakes and the St. Lawrence valley into which empties the drainage of the regions adjacent to the Hudson-Mohawk valley. In the west is a broad lake plain, while in the north the narrow lake valleys of George and Champlain find an outlet thru the Richelieu River.

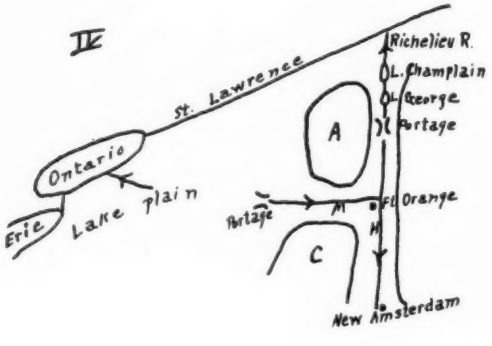


The two watersheds are low, so that from the earliest times the Indians, using these portages, traversed the region from end to end.

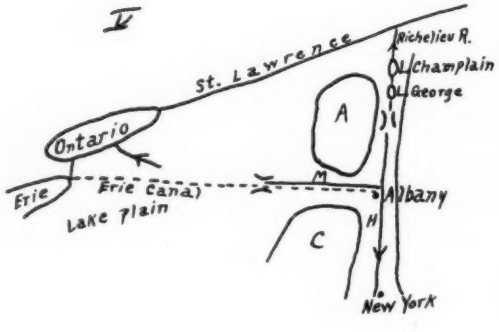


The six steps of this diagrammatic representation may be developed from the basal lines H and M shown in Figure 1. For one

using the Morrison unit plan, such a presentation would produce greater interest than the mere locating of these features on a wall map. Then, too, the pupil in his later study would find new meaning in the maps he uses, and having seen how easily facts may be shown is led to develop similar diagrams for other regions studied.

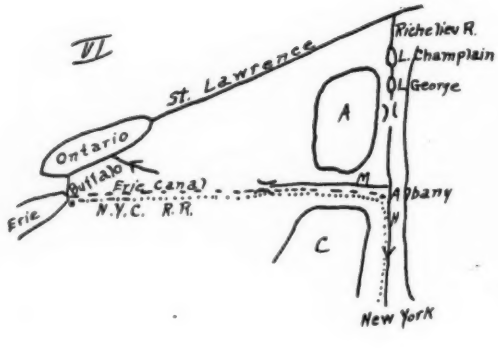


With the coming of the Dutch, the commercial advantages of the region were recognized. The establishment of Fort Orange enabled them to tap the rich fur lands lying west and north, thus furthering the development of New Amsterdam at the mouth of the Hudson. Settlement increased in the Hudson valley and New Amsterdam and Fort Orange were well established when the English conquest renamed them New York and Albany respectively.



Warfare with the French and Indians delayed the occupation of the Mohawk valley, but when this menace was past, and the fertility of the Ohio country became known, this valley, offering the lowest and broadest approach to that region became the great highway to the west.

The need for transportation facilities was immediately apparent, and only a few decades elapsed before the Erie Canal was completed and the lakes were linked to the sea.



Buffalo now became a great entrepôt for the lake trade. The canal was soon inadequate for the steadily increasing traffic. The coming of the railroad again illustrates geographic influence, for the New York Central utilized the same lowland, and the Empire State's importance in the nation's commercial development was assured.

SOME QUESTIONS TEACHERS ASK CONCERNING MAP STUDY IN THE INTERMEDIATE GRADES

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WHAT MAPS ARE TEACHERS USING?

It is difficult for many people to realize how meager are the experiences with maps which thousands of children have before they leave the elementary school, or how many elementary school teachers feel little interest in, or have little understanding of, maps.

In a recent survey of the equipment for the teaching of geography available in over eight hundred elementary schoolrooms, it was found (1) that only a negligible percentage of these schoolrooms had any wall map other than the political map, and (2) that less than one-fourth of the teachers reported any interest in the physical, climatic, or economic maps. Perhaps this condition may be partly accounted for by the fact that thousands of teachers have done little or no studying of geography since they left the seventh grade, and they are teaching as they were taught.

The textbook does not always furnish the help needed, altho the maps in it may be good. Many teachers depend upon the map exercises given in the textbook. Altogether too frequently, such exercises are meager or miscellaneous, or both, and do not lead the children to a solution of the essential problems.

WHY SHOULD CHILDREN STUDY MAPS BEFORE READING?

There are several reasons why map study may be a profitable first step for the children in their study of a new region:

1. Many children approach the reading of the textbook with a rather passive mental attitude, accepting without challenge the statements of the author. When, after reading, the children look at a map, they attempt to recall the facts which have been read and read them into the map, rather than to interpret the map.

2. When children study maps intelligently, they discover facts for themselves. This requires rapid interpretation of symbols, reflective thinking, and self-reliance in gaining information. This is a type of research which a child of intermediate grade ability can do and enjoys doing.

3. The interpretation of maps before reading the textbook

should lead the child to raise questions and draw tentative conclusions. When a child has listed the facts which he has gained concerning the kind of country the new region is, its climate, the distribution of its people, and the industries to which the region appears to be adapted, he will then read his textbook with three purposes in mind: (1) To check on his tentative conclusions and to correct his errors. (2) To secure additional information which he could not, or, at least, did not, get from his map study. (3) To find better or more accurate ways of expressing his findings.

WHICH MAPS SHOULD BE STUDIED FIRST?

There are differences of opinion as to which maps should be studied first. The answer will be influenced by such factors as the objectives in the study of the unit and by the particular type of problem which the individual teacher wishes to have presented first. It is probably safe to say that a teacher could not go far wrong if, in her plans for the unit, she provided such problems as those given below. For each problem, such maps should be used as will aid in finding its solution. The second and third problems might be considered as belonging together. Many teachers prefer to present the fourth problem before the second and third.

Problem 1. (Location and size) *Where is this region? How large is it?* (Use globe and political maps.)

Some teachers object to the study of a locational problem first. It appears to be a sign of intelligence to be interested in finding out where the region about to be studied is located. A consideration of its distance and direction from the equator is important in later problems. Most children will ask where it is if they are not allowed to find out about its location at the first of their study. This problem should consume a very small amount of time, at least in this stage of the study.

Problem 2. (Physical features) *What kind of a country is this region?* (Use physical, or physical-political, and relief maps.)

Problem 3. (Climate) *What kind of a climate does this region have?* (Use maps of rainfall, temperature, growing seasons, winds, storms.)

Problem 4. (Population) *How many people live in this region? Where do they live? Why are they distributed as they are?*

If the children study these problems in the order suggested here, the *why* question concerning population can be answered by means of the facts gained in the study of the second and third problems.

Problem 5. (Industries) *In what ways do the people of this region make a living?* (When the children are ready for maps in this unit, use various economic and industrial maps.)

This unit differs from the other units in that the use of these maps should come *after* the children have listed the industries which they think might be successful in this region, basing their judgments on their findings in the first four problems. The facts which may be gained from the economic maps should then be compared with their own tentative conclusions. These maps may be used for the same three purposes as were suggested for the reading in the textbook.

Problem 6. What is the future of this region?

WHAT IS AN INTELLIGENT STUDY OF MAPS?

Children should do two types of work with maps: (1) They should secure certain basic facts which are more or less obvious to any reader who can readily interpret the map symbols, e.g., facts of location, rainfall, distribution of population, and boundaries. (2) They should do considerable interpreting of these facts which they gain from the map.

A map should raise questions in a child's mind; he must be able to visualize and understand some conditions which cannot actually be seen in the map; he should make comparisons and applications, drawing on his past experiences. Unless maps stimulate a child's imagination and inquisitiveness and he feels that they have something important and interesting for him, it is safe to say that something is wrong. An intelligent use of maps implies the ability to use one or more maps whenever such maps can answer a question or help to solve a problem.

WHY IS MAP STUDY OFTEN DIFFICULT AND UNSATISFACTORY IN ITS RESULTS?

Some of the reasons why children do not use maps intelligently are these:

1. Formal map study is begun too soon. Long before children are introduced to maps in any serious way, they should have had many experiences (thru pictures, observation, the sand table, conversations, and pictorial representations made by themselves) which help them to understand and visualize many things for which map symbols stand (e.g., land and water forms, directions). When the formal study begins before the children have had a sufficient

background of concrete experiences, it is found that their ability to use expressions glibly far outruns their ability to comprehend their essential meanings.

2. At least in the intermediate grades, complicated maps with many symbols and many words lead to confusion instead of clear thinking. Children tend to memorize names instead of learning to read the map.

3. Much map work is too miscellaneous. The child should approach a map with some problem in mind and use whatever symbols or maps are needed to aid him in arriving at a solution.

4. Children are not given sufficient practice in the kind of map study which functions in their solution of problems.

5. Children in the first two or three years, at least, of geography work need study guides which help them to develop a technique for using maps in the solution of problems. The lack of such guides suggests lack of systematic training and leaves the child entirely to a trial and error method of learning a technique for map study.

Too frequently map exercises consist of lists of miscellaneous questions. The ultimate test of an assignment may be suggested by this question: "Does the assignment lead the child to the solution of the problem, not by telling him the facts to be gained, but by showing him the types of data needed for the solution?"

6. Children have too few activities calling for the making of graphical and pictorial representation of facts, e.g., the making of pictorial maps, the use of outline maps to represent the distribution of population.

When Should Map Study Begin?

It is doubtful if formal map study in the primary grades is profitable, altho few teachers would stifle the desire of any child to put his finger on the globe or map if he volunteers a question. The real contribution of the third grade to the work of the fourth grade geography is, however, not in geographical facts learned, but in the development of power to read, and the enriched thinking, attitudes, and interests which result from wide reading done in those grades in various fields, both factual and literary.

Should Maps Be Studied Before Pictures?

There is no "law of the Medes and Persians" governing this problem. Some teachers use one or more pictures to stimulate questions by the children and to motivate the study of the unit.

Some prefer to have considerable study of pictures as a first step in a new unit. Many children are more interested in pictures than in systematic study of maps. A teacher could scarcely profit by using up the most striking of materials first. The chief reason, however, why children profit by a systematic study of maps before doing much with pictures is similar to that given for map study before reading, viz., that they will be encouraged to *interpret* maps rather than to merely try to read into maps facts already gained from other sources. Pictures are a valuable device for checking on ideas gained from maps, as well as for securing additional information, or for motivation, or for testing. When children develop a helpful technique for the interpretation of maps so that they think of the maps as means for finding answers to many questions, they enjoy the exercise of making discoveries in that way.

REFERENCES

The following are three references of recent date which contain excellent discussions of maps and their uses in the elementary schoolroom:

1. National Society for the Study of Education. Yearbook No. XXXII, The Teaching of Geography. Public School Publishing Company, Bloomington, Illinois. 1933

2. Zoe A. Thralls. The Use of Maps in Geographic Instruction, J. of N.E.A., XXI, No. 9 (Dec., 1932), 301-302

3. Zoe A. Thralls and Edwin Reeder. Geography in the Elementary School. Rand McNally & Co., Chicago. 1931

MAN AND WATER SUPPLY

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Rhode Island College of Education

THE VALUE OF WATER

There are many factors in the physical environment of man and while some of them, such as land surface, globe position and climate, are given a large place in the study of geography there are many others with which mankind has to cope that ought not to be neglected. This paper discusses briefly one of these, the domestic water supply.

Water is among natural resources one of the most important in the world. In the humid zones, it has always been made so easy for the householder to obtain water, that he gives little thought to its value, and extravagant waste marks the daily use of this commodity. In the early history of the race it is almost axiomatic to say that mankind's first care when he founded a settlement was a water supply. Towns and villages were built around springs and water courses; and a common engineering feat among ancient peoples was the construction of an aqueduct. Today mankind occasionally builds villages and cities far from any visible supply of water, and increases city population first, to seek water afterwards, because he feels confident that water can be brought to him.

A few centuries ago no one would have dared to found a colony in Northern Chile or in Central Australia, but now Iquique, a city of 45,000, flourishes on the arid Atacama and Kalgoorlie and Coolgardie are located in the very center of the Australian desert. Iquique brings its water from Pica, a distance of eighty-eight miles.

When gold was discovered in the Australian desert in 1892 and the towns of Kalgoorlie and Coolgardie were founded, the district was practically waterless. For a while the railway transported water at a cost of $5000 per day. In 1903, a water line was completed from the Darling Range, 350 miles away. The water had to be elevated 2000 feet, but all engineering difficulties were surmounted and a delivery of 8,000,000 gallons daily resulted. So long are the pipes that they contain a month's supply of water; in other words the water takes one month in travelling from Mundaring to Kalgoorlie.

Water as a means of transportation and as a source of power

has been the chief concern of humid area people. It is generally known, altho somewhat academically, that in arid and semi-arid areas, water is useful and even essential for irrigation. But as a prime necessity for domestic purposes, the use of water is generally accepted as a gift of nature which is constant, abundant, and never failing. The struggle of densely settled areas to get water enough is rarely appreciated by the householder altho reports of plans to increase the supply are constantly before him and large sums of money are voted for water systems. Nevertheless the acquisition of enough suitable water to serve our large cities is in many cases a struggle of considerable magnitude and any defection of the regular supply would result in a serious calamity.

WATER SUPPLY IN HUMID AREAS

New York City consumes on the average 142 gallons of water a day per capita and her 6,900,000 people use nearly one billion gallons a day. The New York system is able to yield 1,100,000,000 gallons of water daily so that the demand for water seems to be somewhat less than the supply. But if one considers that the city has increased in population during the last ten years by 1,300,000 or at the average annual rate of 130,000 with a new demand for water of nearly 20,000,000 gallons daily he will see that in five years the entire available supply may be used. The city is already facing the problem of increase of the water shed. Nearly all large cities in the area between Boston and Washington face similar conditions, generally of less magnitude, but nevertheless of supreme importance to increasing urban populations.

Most of these use surface drainage from small streams, and so nearly do the cities and towns in this region use all the water provided by the Boards of Water Supply that an extended period of drought as in the summer of 1930 causes a scarcity of water. One may recall the orders to discontinue watering lawns and washing automobiles. In places schools have been closed, Monday wash day banned, and tub baths limited, while in many country places water had to be carted from distances. Such contingencies teach us that our water supply is a resource that should be conserved.

If however we turn to another type of city, those whose water supply environment includes the Great Lakes or a large river, we find an ample supply of water. Cities in this class include Detroit, Cleveland, St. Louis, Chicago, and New Orleans.

WATER SUPPLY IN ARID AREAS

Farther west is the arid and semi-arid zone and the water supply becomes acute again. Los Angeles had a population in 1930 of over 1,238,000; in 1920 of over 576,000. The city has increased 114 per cent in ten years, growing four times as fast as New York City which increased in the same period by 23 per cent. Los Angeles outgrew its local supply of water in 1914 when the city's population was about 250,000 and it tapped the Owens River, 250 miles away, approximately the distance from Boston to Lake Ontario. Now the Owens River is inadequate and Los Angeles plans to obtain water from the Colorado River by a 260-mile aqueduct.

The use of water is a big question in all the southwest, and the Colorado River appears to be the normal source of supply, but another and more serious problem arises here. The entire water supply of the Colorado basin is practically allocated to various uses and there will be little excess. Irrigation is necessary for all the land of the lower and upper basins of the river and any diversion of water must necessarily limit the extent of irrigable lands. Here the use of water for domestic supply conflicts with other uses of the water and controversies have arisen and will arise in the face of growing populations which will not be easy to solve.

Los Angeles is predicting a population of 2,000,000 within a few years and there are indications that such may be the case, but before that comes to pass it will be necessary for the city to have recourse to much more water than is at present available within a radius of 400 miles.

THE PURIFICATION OF THE WATER SUPPLY

A few years ago the water supplies of many localities were subject to pollution and thus became the carriers of diseases. Cities such as Philadelphia, St. Louis, New Orleans, Jersey City and many others suffered from scourges of typhoid fever. Mankind has overcome this defect of its water supply environment, and now water from nearly every source is rendered palatable and safe. The death rate from typhoid fever in Richmond, Virginia, in 1908 was 49.7 per 100,000 persons, but during the years, process treatments, settling, filtering and sterilizing have been inaugurated until in 1926 the death rate was 1.1 per 100,000 persons. In Jersey City the death rate from typhoid fever has fallen from 101.3 per 100,000 persons in 1891 to 1.57 in 1926. In general, water supplies

in the United States can be practically absolved as carriers of diseases today and one great danger in travelling and segregation has been eradicated.

Another characteristic, the hardness of the water supply, affects certain industries. Water is hard if it contains such salts of the earth as sulphate of lime, carbonates of calcium and the like, and while hard water may occur anywhere, it is common in limestone areas and in close proximity to the sea. Hard water demands a softening process before the proper detergent action of soap can be brought into play. The advantages of soft water are as follows: it reduces the use of soap in laundries and in silk dyeing; it is favorable to operations of power houses, breweries and photographic establishments; and it lessens scale in boilers and the corrosion of boiler tubes. The Water Supply Board of New York City states that the Catskill water is well suited for business and household purposes and this means the aggregate savings of hundreds of thousands of dollars affecting many classes of consumers in Greater New York.

A history of domestic water supply would be an interesting study and from it one would learn how civilization has struggled successfully to gain pure, potable and agreeable domestic water.

THE PYRAMIDS ARE MOST IMPRESSIVE WHEN SEEN FROM A DISTANCE

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Cornell University

"East is East and West is West—never the twain shall meet." These phrases with reference to the differences between the Orient and the Occident seem to apply with particular force in Cairo, Egypt.

Altho the British are in the background of government in Egypt the political organization of the country and the control of the population and of foreign residents and visitors is in the hands of the Egyptians. Accordingly, one experiences there the natural and unrestrained reactions of a dense and poor oriental population to business prospects in the form of sightseers from the Western World. Its expression is insistent and persistent begging, tip and commission taking. That is one reason why the Pyramids are more imposing when seen in the distance than from close by. In the distance one escapes the horde of beggars, of camel drivers, of assistants of the camel drivers, each striving to make an appeal or perform a service that will extract (not merit) a fee. They swarm. If you indicate to an acquaintance on board another camel your interest in a specimen of rock it is brought to you immediately by one of these parasites, and whether you accept it or not there are expostulations of no mean order if a coin is not forthcoming. Getting a close-up of the Pyramids is trying—an attempt to secure a photograph with experiments for the best point of view requires strong nerves.

In March, 1930, King Albert of the Belgians visited King Fuad of Egypt. It would have been worth the while of a young male traveler to attempt a check-up on the king's visit to the Sphinx. Presumably it was free of all such annoyances. In any event every street in Cairo thru which the king was to pass and the length of the road to the desert monuments was soldier-patroled during the days of his stay. The procession on the occasion of his arrival was a colorful affair, pleasantly photographed from the safe retreat of a window balcony of the hotel.

But when one can go out on the delta plain of the Nile and see the Pyramids silhouetted against the sky, grandly monumental in this flat land, then the Pyramids permit one to go back to the

glamour of ancient Egypt. And out on the delta life probably has not changed much from what it was in those days. One of the commonest sights, curiously repeated again and again, is a man leading a donkey on which a woman rides with a babe in her arms. It is Joseph and Mary and the Child. Just why it is necessary that the family should be out thus does not appear, but there they are, plodding along on the dirt road beside the irrigation ditch.

Parade in Cairo, Egypt, escorting King Albert of Belgium to the palace on the occasion of his visit with King Fuad in March, 1930. (Photo by O. D. von Engeln.)

The chief stewardess on the ship was an enormous German person. On shore leave she had lunch at an outlying restaurant in Alexandria. She enlisted the aid of the English-speaking restaurant employees to give directions to the taxi driver for her return to the ship. As the driver seemed from the start to be going in the wrong direction she protested. No response. After some minutes she protested again. No response. A third time, this time insistently, she asked: "Where are you taking me?" "Bazaar, Bazaar," (commission on any sale) he replied. "I'll bazaar you!" said the stewardess, giving him a clout on the back of the head that caused him to

draw up to the curb in a daze. A policeman had been the horrified witness of these proceedings and he said as the stewardess climbed down: "Lady, you ought not to do that!" Maybe you ought if you are not a king and wish to get an unharried view of the Pyramids from close by.

ON THE TRAIL OF AMERIGO VESPUCCI

O. D. VON ENGELN
Cornell University

Before these papers were begun the Editor wrote very earnestly suggesting that each one should if possible develop some idea of relationship of people and environment.

Now the thought that, more than any other, motivates the civic leaders of the non-metropolitan population centers of Europe is how can we best exploit the landmarks of the past, natural and cultural, for the tourist business. With Europeans this idea has the same importance that Chambers of Commerce in America give to the prospect of securing a new industry for the home town, be it clothes-pin factory, printing plant, or textile mill.

Having from experience become impressed by the attention given to all varieties of historical sites in Europe it was somewhat disconcerting, on arrival in Florence, Italy, to learn that this city appeared to be quite unaware of the fact that it was the birthplace of Amerigo Vespucci, the Italian whose name, perhaps in some degree undeservedly, gives title to the two continents of the New World. There may have been an incidental mention of Amerigo in the local guide-books, but diligent inquiry at tourist sources of information yielded only negative results on the question of the exact site of the birthplace. We did discover that the house is on a certain street, the Borgo Ognissanti, that the site is marked with a tablet and that a river boulevard, on which some of the modern hotels of Florence front, is named Lungarno Amerigo Vespucci.

With so much of a clue we set out to find the birthplace site, and to get a photograph of it. On the first trip we used a taxicab. The task of scanning the house-fronts was divided; two persons of the party of four to watch each side of the street. We went many blocks with no success. On the return trip we made inquiries at intervals in stores. Our knowledge of Italian was quite inadequate for making clear the nature of our quest and the store-keepers'

No. 16 Borgo Ognissanti, Florence, Italy. Birthplace of Amerigo Vespucci. The tablet over the window on the extreme left marks the site. (Photo by O. D. von Engeln.)

understanding of our English was probably equally faulty. So if the local residents had the knowledge we sought we could not make them aware of what we were after.

Quite unwilling to be defeated thus in a matter of geographic interest, I went alone on foot some days later determined that if there was a sign it should be found. And sure enough there, at No. 16, inconspicuous, but with the appropriate inscription, was the marker we had missed. It is the shield over the window on the extreme left of the photograph. The place is now a hospital as the sign at the door indicates. It may be that part of the 15th century structure is preserved but the front seems to have been rebuilt in comparatively recent time.

The birthplace street is approximately parallel to the course of

the River Arno below the famous Ponte Vecchio. The Lungarno Amerigo Vespucci previously mentioned is a boulevard alongside the river in the same section. However, in view of the number of American tourists that visit Florence it would seem that the Florentines could well afford to provide a memorial in the nature of a statue that would represent the figure of the man who has two continents named for him. Perhaps the Florentines do not care much for Vespucci, because, like Columbus, he did all his voyaging from Spain. If, in reality, he did not make all the discoveries that he asserts he did, Amerigo must, nevertheless, have been an imaginative person to invent the tales he tells. Accordingly we may think of him as a lad playing along the banks of the Arno here, and, as he looked westward down its course, wondering.

INTEREST-STIMULATING DEVICE

FOOTBALL IN GEOGRAPHY

This game is particularly useful for reviews and questions that require difficult and thought-provoking answers.

The class is divided into two teams. In review the "kick-off" is started by the teacher asking a question. One player on the receiving team answers the question. A gain of 5 or 10 or 15 yards is made for that team according to the difficulty of the question. (This should be decided before either by the teacher or pupils.) If anyone is disturbing the class by talking while the ball (question) is in motion it is considered as "off-sides" and worth a penalty of 5 or 10 yards. If anyone plays unfairly or interferes with the ball (i.e. "tells" the answer to his team) then that is also worth a penalty of 15 yards.

The "ball" is given to one team and then the other rather than making it too complicated with "downs." Gains are made until the goal is reached.

If a very difficult question is given out and it is answered correctly then that player is entitled to an "end run," "forward pass," or any other appropriate foot-ball term. A "touch down" is then scored for that team. The extra point is attempted generally by a question on location.

To further stimulate interest a chart is kept of the plays on the board. Naturally the possibilities of this game depend upon the teacher and the class with whom she is working.

JANE B. STROHECKER

Southwest Junior High School
Reading, Pennsylvania

NOTE

Send descriptions of your interest-stimulating devices to the JOURNAL. We will be pleased to pass them on, as an aid to others, thru the pages of the JOURNAL. There must be hundreds of teachers who have worked out these aids in teaching. Make your description brief, clear, and exact so that another teacher may follow your directions.

EDITOR

EDITORIAL NOTES AND NEWS

Economy, depression, hard times, prosperity-round-the-corner, new deal, are terms that have become familiar. Being humans we are directly concerned with the serious loss of income in trying times, and, under conditions that thus affect our personal fortunes, we are likely to lose sight of other values that are being jeopardized or lost entirely under the banner of economy. Economy that seriously restricts, handicaps, and hampers the mental growth of our youth is extremely poor economy. School administrators are confronted by a multitude of serious problems and many are handicapped by the pressure of politics and the hunger of public leeches. Not infrequently we see funds expended for flower beds, shrubbery, brick and mortar, and for the support of a host of ward heelers, while new books, maps and other equipment, essential to the education of children, are restricted or denied altogether under the name of economy. Old books, maps, atlases, and other worn-out equipment which are not only out of date but actually grimy with accumulated filth are continued in use. Actually the children, in many cases, are being made to pay the price so that the money will be available for other purposes, yet it is all done under the name of education for the children. It is rarely, indeed, that waste—the greatest curse of public administration—occurs in good educational equipment. It is time that teachers demand economy *where economy is needed* and exert their utmost influence to see that the best equipment is available to the children so that their education will not be hampered. The child in school today is the adult of tomorrow. Good, clean, up-to-date books and maps comprise a very small percentage of school costs. It is an educational crime to deny these to our youth under the pretense of economy, and of "made work" for the adult.

The summer meeting of the National Council of Geography Teachers was held in connection with the National Education Association in Chicago, July 4 and 6. The program was arranged by Miss Erna Grassmuck, State Teachers College, Indiana, Pennsylvania. In spite of the many attractions of Chicago during the summer, especially the Century of Progress, the meetings were well attended. R. G. Buzzard, Normal University, and Fred K. Branom, Chicago Normal College, presided at the two sessions. The program was as follows:

Geography in the Curriculum. Edith P. Parker, University of Chicago.

Attainments in Geography for the Elementary School. Marguerite Uttley, State Teachers College, Cedar Falls, Iowa.

Teacher Preparation for Modern Geographic Education, George J. Miller, State Teachers College, Mankato, Minnesota.

Geographic Education at the Junior High School Level. Erna Grassmuck, State Teachers College, Indiana, Pennsylvania.

Geographic Learnings at the Senior High School Level. Clare Symonds, Senior High School, Quincy, Illinois.

Geographic Learnings Essential in Adult Life. W. H. Haas, Northwestern University.

Dr. L. A. Wolfanger of Columbia University delivered a series of lectures at Northwestern University during the spring quarter on characteristics, interpretation, and economic significance of soils.

Dr. O. D. von Engeln lectured in March before the University Convocation of the University of West Virginia on the subject of "The Sensitive Earth."

This year all ships traversing the waters between the coast of Africa, in the vicinity of the Cape Verde Islands and the Caribbean lands will be called upon during the hurricane season (June to November) by shore radio stations to wireless information to the U. S. Weather Bureau at Washington. News of the progress of hurricanes far out at sea enables the Weather Bureau to forecast the kind of disturbance to be expected on land. This strengthening of the hurricane warning service will help prevent undue anxiety and also enable people in the path of such storms to take the necessary precaution.

Dr. Isaiah Bowman has been elected Chairman of the National Research Council. He will continue as Director of the American Geographical Society, a position which he has held for many years, and devote half of his time to the work of the Research Council.

A CORRECTION

In the paper entitled "The Japanese Landscape" in the January, 1933, number of the JOURNAL, p. 41, it was stated that: "The average density of population (1930) of Japan is 67 to the square mile; the density of population on the cultivable lands is 400 to the square mile." As pointed out in a letter to the Editor by Dr. Glenn Trewartha of the University of Wisconsin, these figures are in error. For Japan proper the average density should be 437 to the square mile. According to Japanese statistics given in the Statesman's Year Book, 1932, Japan proper has an area of 94 million acres of which, in round numbers, 7.5 million acres are in rice, 7 million acres in other cereals, 5 million acres in "plains" and buildings, the rest in forest and waste land. Thus approximately one-fifth of the total area presumably harbors the bulk of the population. If the very considerable city populations (e.g. 4.5 millions in Osaka and Tokyo alone) are subtracted, the figure Dr. Trewartha gives, 1375 to the square mile of cultivated land (source not stated), is representative of the conditions. These corrections, however, serve to emphasize the point made in the original paper.

O. D. VON ENGELN

GEOGRAPHICAL PUBLICATIONS

R. H. Whitbeck and Olive J. Thomas. **The Geographic Factor.** 422 pages. Illustrated. The Century Company, New York, 1932. $2.25.

The rôle of environmental conditions in the development of life and civilization is the subject of this book on "The Geographic Factor." In the fields of ecology, anthropology, anthrogeography, history and the other social sciences there has developed a voluminous literature dealing with the geographical factor and its application, but there still remains much misunderstanding in regard to the significance of the physical environment. Professor Whitbeck and Miss Thomas have surveyed these several fields of knowledge and present in readable form the substance of an extensive literature. They disclaim any belief in geographic determinism. They insist, and reiterate again and again, that the geographic environment has been a passive factor in the evolution of life and human society. There is no escaping the fact, however, that in many activities of man, particularly the economic, the physical environment is of fundamental importance. It is in this field of economic geography that the geographer has a great opportunity to develop the philosophy of significant correlation between earth conditions and the utilization of the land and its resources.

This discussion of the geographic factor has been prepared for an "orientation course in the social studies," and is written especially for the student entering upon his college career. This explains the elementary consideration of such subjects as, The Adaptation of Organisms to Their Environment, Man's Adjustment to His Planet, Climate and Man, and Climate and Its Economic Relationships. Certain particular features of the natural realm have been singled out for special treatment. The chapters on Rivers and Valleys and Their Service to Man, Man's Adjustment to Plains, Geographical Barriers and Human Activities, and Island Life and Insularity, recognize the importance of geography in the location of urban centers and in the development of agricultural and other economic activities.

In the development of our modern civilization man has increased materially his utilization of the mineral resources. To this subject are devoted three chapters entitled, Available Materials and Human Progress, the Revolutionizing Influence of Coal, and The International Importance of the Location of Petroleum Fields.

In a single chapter—Environment, Racial Character, and Religious Beliefs—the authors discuss in a general way such subjects as the influence of geographic environment upon national character, the Arab and his environment, the highland Celt, the influence of natural environment upon literature, factors in religion, friendly and unfriendly gods, paradise, and faith and phenomena. These numerous items illustrate the breadth of the treatment and the ramifications of the subject under discussion.

The evaluation of the geographic factor is concluded by a review of the Geographical Influences in the Forming of American National Character, and Adjustments to the World Environment: Examples from South America. These two chapters give particular emphasis to the problems of the New World where the relations of human activities to the national environment are not so complicated as in Europe and Asia.

The authors in preparing this book have searched a variety of sources and many of the most useful references are listed in a general bibliography. Among the authors cited the name of Ellen Churchill Semple occurs more frequently than any other, and deservedly so. In fact this work may be regarded as a memorial to her, for it was her "Influences of Geographic Environment" which introduced the philosophy of Ratzel to the English speaking public. In addition to the brief general bibliography the authors have listed at the end of each chapter several useful references with specific chapters given in the case of general works. This is a valuable aid to a teacher in making up reading lists.

The teacher of geography and the social sciences will find "The Geographic Factor"

a very useful reference, and the general reader who is interested in the development of the philosophy of geography will profit by a careful study of this excellent survey of the subject. The advanced student of geography and related fields will find little that is new, but he must remember that this book was not prepared for him.

GUY-HAROLD SMITH

Ohio State University

Rupert D. Vance. **Human Geography of the South.** 596 pp., 29 maps, 47 tables. The University of North Carolina Press, Chapel Hill, North Carolina, 1932. $4.00.

Dr. Vance, Research Associate at the Institute for Research in Social Science, University of North Carolina, is one of a group of workers in the South Atlantic Seaboard states, interested in the rehabilitation or the reconstruction of the social and economic milieu of that section. His very excellent book reflects his major interest. His best chapters are those devoted to the exposition of his ideas on regional planning which to him means "orderly industrial development and agricultural reform" thru "social mastery of regional resources and processes." Regional planning does not mean what one might anticipate from the title, planning akin to a Russian Five-Year Plan, but according to the author, is a matter of applied science, technology, and engineering to all economic projects. Individual and local initiative is not to be suppressed by an over-body of autocratic directors. Sound planning, however, first demands a knowledge of present social and economic conditions and of resources, that is, a regional survey. "The regional survey is a matter of science, cartographical, geographical, descriptive, statistical." It is for this reason that the physical features, the soil, the climate, and mineral resources of the South receive consideration by the author, in fact, make up a large part of the book. Physical, economic, and social conditions of the South are also discussed in the chapters (regional treatment) entitled: The Piney Woods, Cotton Economy (Cotton Belt), The Fringes of the Cotton Belt, The Southern Highlands, The Delta: Plantation Heritage, The Piedmont Crescent in Industry, and The South Meets the West. His chapters on The Southern Clime and on Climate, Health, and Energy are excellent social geography.

Like most writers presenting a survey of the South, the author recognizes that the present-day South cannot be interpreted apart from the past. "Population Moves across the Map" and "The Heritage of the Frontier" discuss briefly the spread of the population and the social and economic life of the pioneers as factors in Southern behavior, past and present.

In his concluding chapters on regional planning, entitled, The Structure of Regional Economy, and Reconstructing the Region, the author does not premise his treatment on Chamber of Commerce or *Manufacturer's Record* data. He starts with the two ratings by Angoff-Mencken and S. H. Hobbs, Jr., based on sixty-three items, in which the Southern States come out at the bottom. "There is no denial of the fact that the modes of Southern economy in wealth and welfare fall about one-third short of national norms." Intelligent planning, therefore, is essential if the South is to assume its just share of national responsibility.

The sixty-seven pages of bibliography, the frequent quotations, and the hundreds of citations thruout the book are evidence enough that Dr. Vance has covered his field painstakingly and thoroly. His book departs in its scope from the usual type of geography. Most geographers are content to give their readers geographic concepts of the status quo present (or of the past if historical geography); the author of this volume goes beyond this. His is a forward look. He points to a practical use of geography in worth-while attempts at the improvement of human society.

The author's style is pleasing, entertaining, and rapid. It has the rare merit of being literary rather than prosaically scientific.

Dr. Vances' The Human Geography of the South, is a valuable contribution to geographic and sociologic literature. It will prove valuable, the reviewer is certain, to the research student in the field of social geography and sociology and to the general intelligent reader.

A. E. PARKINS

Peabody College
Nashville, Tenn.

J. Paul Goode. **School Atlas.** Revised and Enlarged. 303 pages. Rand McNally and Co., Chicago. 1932. $3.25.

The greatest cartographer of America, J. Paul Goode, spent his last years enlarging and revising the atlas brought out in 1923. In the summer of 1932, a few weeks before his death, the new edition came from the press. This atlas is truly a masterpiece, the result of Dr. Goode's remarkable ability in cartography and graphics and the long years spent in the study and teaching of geography.

The atlas contains 174 pages of colored maps and a pronouncing index of 111 pages. It opens with a series of world maps of surface, population density, temperature, rainfall, native vegetation, and trade routes. These are presented on the Homolosine Equal-Area projection, Dr. Goode's own invention. By the use of this equal-area projection it is possible to make maps of world areal distributions with a high degree of accuracy, a striking contrast to the erroneous, distorted world patterns attempted by some map makers on the Mercator projection. The world series continues with graphic maps which present the comparative production by countries of the major commodities entering world trade. The device used is that of the area of a circle proportional to the output of the country.

From the point of view of the American student, space in the atlas is well apportioned among the continents. The major emphasis is placed upon North America to the extent of 51 pages. Europe receives an allotment of 28 pages, Asia 20 pages, Africa 10 pages, South America and Australia each 8 pages.

For each of the six inhabited continents, maps on the same scale showing seasonal and annual rainfall, January and July normal surface temperature, native vegetation, relief, and population density are grouped on one page or on two facing pages. This arrangement greatly facilitates use of the maps when one is searching for coincidences in areal distribution of certain natural and human phenomena. The January and July normal surface temperature maps are easily readable because of the use of the normal monthly isotherms of 68°, 50°, and 32°. These isotherms represent the levels of average monthly temperatures standard for the application of terms *hot* (more than 68°), *warm* (68° to 50°), *cool* (50° to 32°) and *cold* (less than 32°). No space is wasted upon maps of average annual temperature or of temperature reduced to sea level, for this type of map is worthless to the student of human ecology.

The climax contribution of the whole atlas is the 50 pages of maps on the scale of 1 inch to 64 miles. At last, the student of American geography can possess an atlas in which every section of the United States is drawn upon a large enough scale that he can easily read cultural items such as railroads, canals, towns, and cities superimposed upon land forms. Nor are these excellent large-scale maps confined to the United States alone. Central America, the West Indies, most of Mexico, Maritime Canada, all of Europe except eastern and northern Russia, Japan, part of eastern and southern China, the Philippine Islands, New Zealand, southeastern Australia are given on large scale also. Added to this notable collection is an equally praiseworthy one of 63 inset maps on scales 1 inch to 16 miles and 1 inch to 8 miles, showing 37 of the world's largest cities and a number of areas of general interest, such as the Mississippi Delta and the Panama Canal.

Dr. Goode has made an outstanding contribution to the map-making world in the techniques he has evolved for making a map truly legible. One conceives of the legibility of the map as largely dependent upon the number of place names entered upon it. But upon comparing the Goode maps with other color-band physical-political maps of the same size, one discovers there are as many if not more place names on the Goode maps. The secret of Dr. Goode's technique probably lies in the fact that he discovered a way to clear his maps of the maze of black lines which are commonly used by other map makers. In place of black contour lines, Dr. Goode made the edge of the darker colored band serve as a contour line. Furthermore, the confusion between black lines for railroads and for rivers is avoided by the use of red lines for railroads. Thus the black line is confined to seacoasts and rivers. The six colors used to represent the various ranges of altitude are strongly contrasting, yet transparent enough to make the red and black overprint easily readable. The style and size of type, the symbols for towns and cities are such that the reader finds what he is seeking without having to use a magnifying glass.

Not only is this atlas of great value for use in the elementary school, the high school, and the college, but it is equally valuable for reference use by the reader of newspapers, magazines and books in out-of-school life. The excellent index, the legibility of the maps, the convenient size of the book, make it easy for the "atlas habit" to become a reality.

MARGUERITE UTTLEY

Iowa State Teachers College
Cedar Falls, Iowa

Luther C. Snider. **Earth History.** 683 pp., 335 illustrations. The Century Company, New York. 1932. $4.50.

The more that geography teachers understand as to the earth the better they are prepared to teach geography. Few have had the time to formally study the history of the earth and earth features sufficiently. Hence there has been need for readable books about the history of earth and life.

Dr. Snider, in "Earth History," discusses the origin of the earth, the changes of its interior, surface, and atmosphere thruout its duration of more than a billion years, and also the evolutionary history of each of the chief types of plant and animal life, including mankind. Moreover, he discusses at some length such topics as the volcanic, earthquake, and other catastrophes of historical times, and the exploitation of mineral resources.

The significance of this volume lies in the success with which the broad field is covered. Dr. Snider has made a careful survey of the better technical books and articles on each topic, and each section is a well written digest of this technical literature, which he cites adequately.

"Earth History" is written for those seeking a careful but readable summary of the history of the earth and the evolution of its life forms. It does not presuppose an extensive knowledge of geology, geography, or biology. It affords the broad view of the subject that is so desirable but which is seldom obtained.

It can be read with understanding even by interested high school students. The hundreds of excellent illustrations add to its value. Many of them, for example those showing the evolution of the various types of animals, represent a vast amount of research.

Dr. Snider has done a fine service to those interested in the earth by preparing this splendid book, which merits enthusiastic recommendation as by far the best, comprehensive summary of the great themes discussed.

STEPHEN S. VISHER

Indiana University

The JOURNAL *of* GEOGRAPHY

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The Highways and Byways of Guatemala. By Wallace W. Atwood 265

Dr. Wallace W. Atwood was, for several years, connected with the University of Chicago, and later held the Chair of Physical Geography at Harvard. In 1920 he was called to the Presidency at Clark University and invited to establish a Graduate School of Geography. His recent studies in Guatemala, upon which the article in this number of the JOURNAL is based, were made under the auspices of the Carnegie Institution of Washington. They involved the planning of a geographical survey of the highlands of Guatemala, where the records of the very ancient Mayan civilization remain. Last winter Dr. Atwood represented the United States in Rio de Janeiro at the First Congress of the Pan American Institute of Geography and History and at that Congress he was elected President of the Institute. This is the twenty-ninth article in our Human Geography Series.

Cocoa. By Ernest Young 279

Mr. Young was one of the pioneers in the teaching of human geography in England and is well known in America as joint author of the Fairgrieve and Young "Human Geography by Grades." He has also served as visiting professor at the University of Chicago and the University of California at Los Angeles. He is a Fellow of the Royal Geographical Society, Honorary Organizing Secretary for Branches of the Geographical Association, and formerly Assistant Secretary for Higher Education in the County of Middlesex.

This is the first of our new series of UNIT STUDIES. Nine articles are now ready and will treat, in simple language, such interesting topics as rubber, sago, bananas, coconuts, tea, and rice. Nothing like them has been published in this country. Your children will be carried from the Orient to the Americas into varying types of climatic regions, to get an intimate picture of people at work and play.

A Survey of Books on Methods of Teaching Geography. By Agnes M. Allen 285

Miss Allen was formerly an assistant professor of geography, State Teachers College, Hattiesburg, Mississippi, and has been carrying on her graduate work recently at Clark University.

A Geographical Sketch of the World's Diamond Trade. By Alice Foster 290

Miss Foster is an instructor in geography, University High School, University of Chicago, joint author of Economic Geography for Secondary Schools, author of Geography in the Senior High School in the Thirty-second Yearbook of the National Society for the Study of Education, and of numerous geographical articles in the JOURNAL and other magazines.

A Method of Testing. By M. Melvina Svec 295

Miss Svec is an instructor in the State Teachers College, Buffalo, New York.

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Authors alone are responsible for opinions and statements in the JOURNAL.

Brigham and McFarlane

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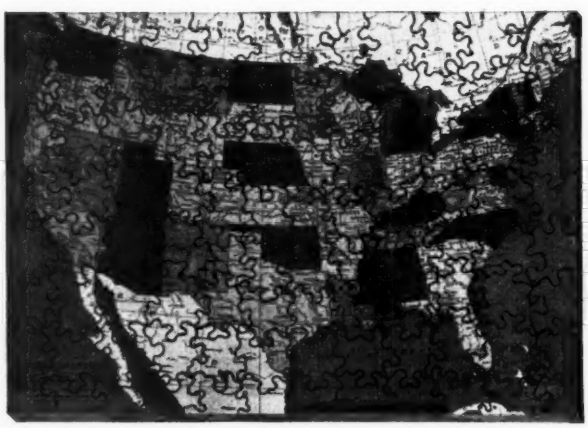

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